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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,159	08/16/2001	Hitoshi Iwasaka	1609.1001	1497

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EXAMINER	
RINEHART, KENNETH	
ART UNIT	**PAPER NUMBER**
3749	

DATE MAILED: 01/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/930,159	IWASAKA ET AL.
	Examiner	Art Unit
	Kenneth B Rinehart	3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,8-14,31,32 and 38-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *45-54* is/are allowed.

6)☒ Claim(s) *1,10-14,38-44 and 55-59* is/are rejected.

7)☒ Claim(s) *8,9,31 and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 August 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a fluid swivel formation object, comprising. a concave space formed in the body, ... wherein the fluid swivel formation object is disposed at a center of the body must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 55-56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 55 and 56 refer to a fluid swivel formation object, comprising. a concave space, wherein the fluid swivel formation object is disposed at a center of the body was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over being anticipated by Siniaguine et al (6099056) in view of Siniaguine et al (6402843). Siniaguinie et al discloses A non-contacting conveyance equipment to convey an object comprising: a base (11, fig. 2A); the base is surrounded with a stepped-shape-peripheral edge to block a flow of fluid from the base (13, FIG. 2B). Siniaguine et al discloses applicant's invention substantially as claimed with the exception of. and a plurality of fluid swirl formation objects which are provided at the base, wherein:, and each of the plurality of fluid swirl formation objects comprises: a body having an

end face that opposes the object, and a concave opening formed in the end face and surrounded by a cylindrical inner side wall, and at least one fluid passageway having at least one spout to introduce the fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of the fluid within the concave opening, the at least one spout being formed on the cylindrical inner side wall. Siniaguine et al teaches and a plurality of fluid swirl formation objects which are provided at the base (FIG. 4), wherein:, and each of the plurality of fluid swirl formation objects comprises: a body having an end face that opposes the object (FIG. 1A), and a concave opening formed in the end face and surrounded by a cylindrical inner side wall (FIG. 1A), and at least one fluid passageway having at least one spout to introduce the fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of the fluid within the concave opening (2, FIG. 3), the at least one spout being formed on the cylindrical inner side wall ((2, fig. 3) for the purpose of preventing distortion to the wafer. It would have been obvious to one of ordinary skill in the art to modify Siniaguine by including and a plurality of fluid swirl formation objects which are provided at the base, wherein:, and each of the plurality of fluid swirl formation objects comprises: a body having an end face that opposes the object, and a concave opening formed in the end face and surrounded by a cylindrical inner side wall, and at least one fluid passageway having at least one spout to introduce the fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of the fluid within the concave opening, the at least one spout being formed on the cylindrical inner side wall as taught by Siniaguine for the purpose of preventing distortion to the wafer and thus improve yields and reduce manufacturing costs.

Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Siniaguine et al (6402843) in view of Akashi (5067762). Siniaguine discloses A non-contacting conveyance equipment to convey an object comprising: a base (fig. 6), and a plurality of fluid swirl formation objects which are provided at the base (FIG. 4), wherein:, and each of the plurality of fluid swirl formation objects comprises: a body having an end face that opposes the object (FIG. 1A), and a concave opening formed in the end face and surrounded by a cylindrical inner side wall (FIG. 1A), and at least one fluid passageway having at least one spout to introduce the fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of the fluid within the concave opening (2, FIG. 3), the at least one spout being formed on the cylindrical inner side wall ((2, fig. 3). plurality of fluid swirl formation object (fig. 4). Siniaguiine et al discloses discloses applicant's invention substantially as claimed with the exception of at least one fluid discharge passage provided in the base to expel fluid supplied by the Akashi teaches at least one fluid discharge passage provided in the base to expel fluid supplied by the ... (12, fig. 13) for the purpose of removing the exhaust gas. It would have been obvious to one of ordinary skill in the art to modify Siniaguine by including at least one fluid discharge passage provided in the base to expel fluid supplied by the ... as taught by Akashi for the purpose of removing the exhaust gas to prevent contamination to he environment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1, 10, 14, 38, 39, 40, 41, 42, 43, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siniaguine et al (6402843) in view of Trayes (4009785). Siniaguine et al discloses a body (1, fig. 1) having an end face that opposes an object being conveyed, and at least one concave opening (4, fig. 1) formed in the end face and surrounded by a cylindrical inner wall, at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner sidewall so as to cause a swirl of fluid within the concave opening, at least one spout being formed on the inner cylindrical inner sidewall (2, fig. 1, fig. 2), a base (15, fig. 4), a plurality of fluid swirl formation objects which are provided at the base (16, fig. 1), wherein each of the plurality of fluid swirl formation objects comprises a body having an end face that opposes the object to be veyed (fig. 1a, fig. 4), and a concave opening formed in the end face and surrounded by a cylindrical inner side wall (fig. 1), and a fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in a circumferential direction of the cylindrical inner side wall so as to cause a swirl of fluid within the concave opening, the at least one spout being formed on the cylindrical inner side wall (2, fig. 1), at least one fluid discharge passage provided in the base to expel fluid supplied through the at least one spout of the plurality of fluid swirl formation objects (fig. 6A), the concave opening is in a tapered shape (fig. 1a). Siniaguine discloses applicant's invention substantially as claimed with the exception of a centering guide; and a centering mechanism provided at the body to adjust the centering guide to cause the centering guide to control a lateral movement of the object, a centering mechanism which is provided at the base and adjusts the centering guide to cause the centering guide to control a

lateral movement of the object being conveyed. Trayes teaches a centering guide; and a centering mechanism provided at the body to adjust the centering guide to cause the centering guide to control a lateral movement of the object, a centering mechanism which is provided at the base and adjusts the centering guide to cause the centering guide to control a lateral movement of the object being conveyed (70, 72, fig. 2) for the purpose of preventing the wafer from becoming damaged. It would have been obvious to one of ordinary skill in the art to modify Siniaguine et al by including a centering guide; and a centering mechanism provided at the body to adjust the centering guide to cause the centering guide to control a lateral movement of the object, a centering mechanism which is provided at the base and adjusts the centering guide to cause the centering guide to control a lateral movement of the object being conveyed as taught by Trayes for the purpose of preventing the wafer from becoming damaged and thus reducing manufacturing costs. Siniaguine et al in view of Trayes discloses applicant's invention substantially as claimed with the exception of at least one spout further comprises plural pairs of spouts, and each of the plural pairs of spouts is formed on the cylindrical inner side wall symmetrically to a central axis of the concave opening, the end face comprises a chamfered edge, the plurality of fluid swirl formation objects are provided at the base in such a way that each of the plurality of fluid swirl formation objects extend form the base. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have at least one spout further comprises plural pairs of spouts, and each of the plural pairs of spouts is formed on the cylindrical inner side wall symmetrically to a central axis of the concave opening, the end face comprises a chamfered edge, the plurality of fluid swirl formation objects are provided at the base in such a way that each of the plurality of

fluid swirl formation objects extend form the base because Applicant has not disclosed that the number of spouts or location of the spouts, or shape of the end face, or shifting the location of a part provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the spout of Siniaguine or the claimed plurality of spouts, locations, and shapes and location of parts because both quantities, locations of spouts, and shape, and location of parts perform the same function of conveying equally well.

Claims 11, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siniaguine et al (6402843) in view of Trayes (4009785) as applied to claim 10 above, and further in view of Siniaguine et al (6099056). Siniaguine et al (6402843) in view of Trayes discloses applicant's invention substantially as claimed with the exception of fluid swirls clockwise in at least one of the plurality of fluid swirl formation objects, and fluid swirls counter clockwise in at least one of the plurality of fluid swirl formation objects, the base is surrounded with a peripheral edge to block a flow of fluid from the base, the peripheral edge has a stepped shape. Siniaguine et al (6099056) teaches fluid swirls clockwise in at least one of the plurality of fluid swirl formation objects, and fluid swirls counter clockwise in at least one of the plurality of fluid swirl formation objects (fig. 5) for the purpose of allowing the rotational vortexes on the article to cancel and the article does not rotate relative to the facing surface. It would have been obvious to one of ordinary skill in the art to modify Siniaguine et al by including fluid swirls clockwise in at least one of the plurality of fluid swirl formation objects, and fluid swirls counter clockwise in at least one of the plurality of fluid swirl formation objects as taught by Siniaguine et al for the purpose of preventing rotation to preserve the orientation of the object being transported for

placement. Siniaguine et al (6099056) teaches the base is surrounded with a peripheral edge to block a flow of fluid from the base (13, fig. 1B) for the purpose of retaining the object adjacent to the facing surface. It would have been obvious to one of ordinary skill in the art to modify Siniaguine et al by including the base is surrounded with a peripheral edge to block a flow of fluid from the base as taught by Siniaguine et al (6099056) for the purpose of retaining the object adjacent to the facing surface so that the object is not damaged. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have stepped shape because Applicant has not disclosed that the shape of the edge provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the shape of Siniaguine or the claimed shape because both shapes perform the same function of preventing damage to the object equally well.

Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Siniaguine et al 6099056). Siniaguine et al discloses a base (fig. 6), wherein the base comprises a base part and first and second arm parts which branch from the base in a prong arrangement (fig. 6); and a ... of fluid swirl formation objects which are provided at the first and second arm parts (52a, 52d, fig. 6), wherein: each of the plurality of fluid swirl formation objects comprises: a body having an end face that opposes the object (fig. 6), and a concave opening formed in the end face and surrounded by a cylindrical inner side wall (fig. 6), and at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of the fluid within the concave opening (54a, 54d, fig. 6), the at least one spout being formed on the

cylindrical inner side wall (fig. 6), and among the ... of fluid swirl formation objects provided at the first and second arm parts (fig. 6), the fluid swirls in a first direction in the fluid swirl formation objects provided in at the first arm part (52d, fig. 6), and the fluid swirls in a second direction opposite to the first direction in the fluid swirl formation objects provided in the second arm part (52a, fig. 6). Siniaguine et al discloses applicant's invention substantially as claimed with the exception of plurality. At the time the invention was made it would have been an obvious matter of design choice to a person of ordinary skill in the art to have plurality because applicant has not disclosed that plurality provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the formation of Siniaguine or the claimed plurality because both quantities perform the same function of providing support and preventing rotation equally well.

Allowable Subject Matter

Claims 45-54 are allowed.

Claims 8-9, 31-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 571-272-4881. The examiner can normally be reached on 7:20 -4:20.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kbr

KENNETH RINEHART
PRIMARY EXAMINER